REMARKS

This application contains claims 1-3, 5-9, 11-16, 18-22 and 24-26. Claims 3 and 16 have been canceled without prejudice. Claims 1, 8 and 14 are hereby amended. No new matter has been introduced. Reconsideration is respectfully requested.

Applicant thanks Examiners Serrao and Luu for the courtesy of a personal interview with Applicant's representative, Daniel Kligler (Reg. No. 41,120), held in the USPTO on September 27. At the interview, Applicant's representative explained that the cited art does not teach or suggest the use of the layer 2 spanning tree protocol (STP) in a transparent LAN system based on label-switched tunnels. The combined limitations of claims 1 and 3 were discussed as a specific example of the novel use of signaling labels in distributing STP signaling frames. Although Applicant continues to believe that claims 1 and 14 as previously presented are patentable over the cited art, it was agreed at the interview that Applicant would amend the limitations of claim 3 into claim 1, and that the Examiner would reconsider the amended claims notwithstanding the present final rejection.

Claims 1-3, 5-9, 11-16, 18-22 and 24-26 were rejected under 35 U.S.C. 103(a) over Rekhter et al. (U.S. Patent 6,339,595) in view of Carroll et al. (U.S. Patent 6,304,575). Applicant has amended independent claims 1 and 14, as agreed in the interview, to incorporate the limitations of claims 3 and 16, respectively, and thus to further clarify the distinction of the present invention over the cited art. Claim 8 has been amended to correct a typographical error.

Claim 1 recites a method for controlling a system of label switched tunnels by sending STP signaling frames in a layer 2 transparent LAN system (TLS) through the tunnels, and processing these frames in order to eliminate loops in the system. The claim has been amended to clarify the mechanism by which the STP frames are transmitted through the tunnels: an agreed-upon label value is pushed onto the STP frame at the sending node, and the recipient nodes pop off and recognize this label value as a sign that the frame should be processed in accordance with STP.

In this manner, the label-switched routers that create the tunnels used for carrying user data in the TLS are, in effect, made to emulate the operation of layer 2 bridges. In other words, the use of special signaling labels in conjunction with STP signaling frames permits the layer 2 loop avoidance protocol to be implemented over a network of layer 3 label-switched routers. This mechanism provides a simple, reliable means for avoiding loops in the TLS, which may include both physical and virtual links (see paragraphs 0028-0030 in the specification).

Rekhter describes a layer 3 virtual private network (VPN), which uses "PE routers" and "CE routers" in providing layer 3 service over a VPN (col. 4, lines 34-57). Rekhter's network uses the standard layer 3 Border Gateway Protocol (BGP) to detect and reject routing loops (col. 24, lines 39-57, cited by the Examiner). In the present official action, the Examiner acknowledged that Rekhter fails to teach the use of a layer 2 TLS or the layer 2 spanning tree protocol (STP), as recited in claim 1. Although Rekhter's routers use tags in routing packets (col. 7, lines 14-22, for example), Rekhter neither teaches nor suggests the use of an agreed-upon value in a signaling label to indicate that signaling frame belongs to a protocol for eliminating loops, as recited in amended claim 1. In fact, Rekhter uses tags for routing purposes only, and makes no suggestion that an agreed-upon label value could be used in any way to indicate a signaling frame.

Carroll describes an improved spanning tree protocol for use by token ring devices (abstract). Token Ring is a LAN standard, like Ethernet, which performs layer 2 bridging functions (col. 1, lines 14-20 and 40-50). Token ring bridges may operate in either a source-route bridging (SRB) or source-route transparent (SRT) mode, as specified by the IEEE 802.1D MAC standard (col. 2, lines 41-49). SRT mode means simply that bridges use filtering databases to forward data frames based on MAC addresses (col. 2, lines 49-52), i.e., it has nothing to do with transparent LAN systems (TLS), which use tunnels through a layer 3 network to provide virtual layer 2 functionality. In one of the passages cited by the Examiner, Carroll states explicitly that his improved STP is directed specifically to switches and other devices that operate at the "data link layer (i.e., layer 2)" (col. 8, lines 3-7).

Thus, Carroll neither teaches nor suggests the extension of STP to operate in a TLS environment, via label-switched tunnels (which by definition are part of a

layer 3 network). Therefore, Carroll cannot be taken to suggest transmitting STP signaling frames through such tunnels, and he certainly does not suggest the use of signaling labels to indicate such frames in the manner recited by the amended claims.

To summarize, the cited art neither teaches nor suggests the transmission of STP frames through label-switched tunnels in a TLS or the use of an agreed-upon signaling label to indicate such frames to the recipient nodes, as required by claim 1. Therefore, claim 1 as amended is believed to be patentable over the cited art. Claim 14, which recites a communication device operating on principles similar to the method of claim 1 and has been amended in like manner, is believed to be patentable for the same reasons. In view of the patentability of independent claims 1 and 14, dependent claims 2, 5-9, 11-13, 15, 18-22 and 24-26 are also believed to be patentable.

Applicant believes the amendments and remarks presented above to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, all of the claims now pending in this application are believed to be in condition for allowance. Prompt notice to this effect is requested.

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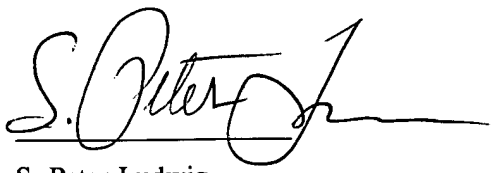
Respectfully submitted



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